

What Is Claimed Is:

1. A storage operation management system which is composed of multiple storage devices connected to a network and an operation management server for managing operations of the storage devices and provides information from the storage devices to a business server having multiple applications accessed via the network, comprising:

the operation management server including,

policy acquisition means which acquire a policy regarding the volume;

detection means which detect that a change occurred in a configuration of the storage devices connected to the network;

volume information management means which, when a change was detected by the detection means, acquire a specification value of a volume from the changed storage device and updating volume management information;

memory means which hold an attribute value of the storage device corresponding to a type of an application used in the business server for a total volume including the volume updated by the volume information management means;

processing means which calculate a standard value for classification of the attribute value with reference to a type of the application obtained by referring to the memory means; and

allocation processing means in which an attribute value

that conforms to a type of an application with reference to the policy requested from the policy acquisition means allocates an unallocated volume within a range of a standard value calculated by the processing means.

5 2. The storage operation management system according to claim 1, the policy acquisition means acquire the attribute value related to the volume sent from an operation management terminal via the network and information including the type of the application as policies.

10 3. The storage operation management system according to claim 1, wherein the memory means store a first table for managing the attribute value, a second table for managing information about the attribute value required corresponding to the type of the application, a third table for managing information that
15 indicates a status of the total volume, and a fourth table that indicates the volume for every application type generated based on the information on the first to third table, a level regarding the attribute value, and an allocation status of the volume to the business server.

20 4. The storage operation management system according to claim 3, wherein the volume information management means comprise means which add the specification value acquired from the changed storage device to the first table as a record, means which acquire volume information from the changed storage device, means which
25 add the acquired volume information to the third table as a record,

and means which add volume information for the changed application to the fourth table by referring to the first table to third tables as a record.

5 5. The storage operation management system according to claim 1, wherein the memory means use a value regarding performance and reliability as the attribute value to store information on the performance and reliability with reference to at least Web contents, an image file, and a DBMS management area as an application type.

10 6. The storage operation management system according to claim 2, wherein the operation management terminal comprises a display, and the information on the specified policy and the information on the volume selected by the allocation processing means are displayed on the display for a user's confirmation.

15 7. The storage operation management system according to claim 1, wherein the processing means comprises:

first calculation means which calculate the standard value of level classification in accordance with the type of the application when the volume is selected for the attribute value,
20 and

second calculation means which calculate the standard value of the level classification in accordance with a change in distribution states of the multiple storage devices for the attribute value after the configuration of a storage device
25 changed.

8. The storage operation management system according to claim 1, wherein the calculation means calculate the standard value so that the volumes of the same number can be included respectively in each rank in the classification.

5 9. The storage operation management system according to claim 3, wherein the second table registers a RAID level, write performance, read performance, and a number of IO instructions per unit time (IOPS) as required performance corresponding to the type of the application and registers at least the write
10 performance and the read performance as evaluation function coefficients when a performance value is calculated.

 10. The storage operation management system according to claim 3, wherein the first table registers a drive type, the RAID level, a drive configuration, the write performance, the
15 read performance, and the IOPS corresponding to a type name of the storage device.

 11. The storage operation management system according to claim 3, wherein the first table registers the RAID level, the drive configuration, and a coefficient of reliability
20 corresponding to the type name of the storage device.

 12. The storage operation management system, wherein the third table registers a volume ID, the type name, the drive type, the RAID level, the drive configuration, and an allocated state.

 13. The storage operation management system according
25 to claim 3, wherein the fourth table registers the type of the

application, the volume ID, a performance level, a reliability level, and the allocated state of the volume.

14. A program that functions on a storage operation management system for managing operations of multiple storage
5 devices storing information that is provided to a business server having multiple applications accessed via a network, comprising:

detection means which detect whether a change occurred in a configuration of the storage devices connected to the network;

10 volume information management means which, when a change was detected by the detection means, acquire a specification value of a volume from the changed storage device and updates volume management information;

policy acquisition means which acquire a policy regarding
15 the volume;

means which makes a memory hold an attribute value of the storage device corresponding to a type of an application used in the business server for a total volume including the volume updated by the volume information management means;

20 processing means which calculate a standard value for classification of the attribute value with reference to a type of the application obtained by referring to the holding means; and

allocation processing means in which an attribute value
25 that conforms to a type of an application with reference to the

policy requested from the policy acquisition means allocates an unallocated volume within a range of a standard value calculated by the processing means.

15 15. A storage operation management method for managing an operation of a storage device in a system including multiple storage devices connected to a network, comprising the steps of:

 obtaining a first distribution of multiple volumes with reference to at least one attribute value that evaluates the
10 storage device;

 a first calculation step that calculates a standard value of level classification in accordance with a type of an application when the volume is selected in the obtained first distribution;

15 detecting a change in a configuration of the storage device included in a system;

 obtaining a second distribution of the multiple volumes with reference to the attribute value for the system including the storage device after the change; and

20 a second calculation step that calculates the standard value of the level classification in accordance with the type of the application when the volume is selected in the obtained second distribution.

 16. The storage operation management system according
25 to claim 15, wherein the first and second distributions of the

multiple volumes with reference to performance and reliability are obtained as the attribute value.

17. The storage operation management system according to claim 15, wherein the first and second distributions of the multiple volumes with reference to the performance and cost are obtained as the attribute value.

18. A storage operation management system that manages operations of multiple storage devices connected to a network, comprising:

10 first calculation means which calculate a standard value of level classification in accordance with a type of an application when a volume is selected for at least one attribute value of each storage device; and

second calculation means which calculate the standard value of the level classification in accordance with a change in distribution states of multiple storage devices for the attribute value when a configuration of the storage device was changed.

19. The storage operation management system according to claim 18, wherein the second calculation means recalculate the standard value so that the storage devices of the same number can be included respectively in each rank in the level classification.

20. The storage operation management system according to claim 18, wherein the second calculation means recalculate

the standard value so that the storage device having the number of ratios corresponding to each rank can be included respectively in the rank in the level classification.